Air Force Research Laboratory|AFRL

Science and Technology for Tomorrow's Air and Space Force

Success Story

TWO SENSORS DIRECTORATE ENGINEERS RECEIVE ASSOCIATION OF OLD CROWS AWARD

Lieutenant Colonel (now retired) Donald J. Kessler (right) and Master Sergeant David N. Coates (left) received the Association of Old Crows Command and Control Award for their contributions to US combat effectiveness and survivability with the invention of a revolutionary new radio antenna switch. In less than 3 months, they designed, tested, produced, and fielded nearly 100 Kessler-Coates (KeCo) switches.

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Accomplishment

Two Sensor Directorate engineers were honored by the Association of Old Crows for their quick response to the Air Force Special Operations Command (AFSOC) commander's request for a solution to a problem the command had with their special operations radios. The innovative switch allows forward-deployed troops to keep in direct contact with both satellite and ground communications systems.

Background

The KeCo switch solved a potentially life-threatening limitation of the Special Operations tactical radio that required sharing the single antenna port with both satellite communications and line-of-sight antennas while allocating and coordinating coalition strike forces. This process originally required repeated and quick disconnect and reconnect of antennas when switching back and forth between aircraft/weapon allocation tasks and terminal control of inbound aircraft, often while the combat controller was under fire from ground forces. The KeCo is a custom radio-frequency switch that enables rapid switching between these two antennas, utilizing the radio's single antenna port.

By working directly with Special Operations personnel to identify and incorporate human factors and environmental requirements into the design, they were able to share evolving prototypes with users to optimize design and ensure the ultimate success of KeCo with the warfighters. KeCo was demonstrated to senior leadership under field conditions and was featured at the AFSOC Applied Technology Council.

The KeCo switch completely eliminated lengthy radio communication interruptions between combat controllers by providing rapid switching between satellite communications (command and control connectivity) and the line-of-sight antenna (directing inbound strike aircraft), and it significantly reduced combat controller workload. Currently, more than 1,500 switches have been ordered.

Sensors
Awards and Recognition

Additional information

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